

Missouri White-tailed Deer Management Plan



Missouri Department of Conservation

2025 – 2034

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EXECUTIVE SUMMARY

During the last century in Missouri, white-tailed deer (*Odocoileus virginianus*; deer) have gone from the brink of extirpation to an abundant and common fixture of the state's landscape. Deer are the most pursued big game animal in the state and are both socially and economically important to the citizens of Missouri. Because opinions about deer and deer management vary widely among members of the public, managing deer populations is a delicate balancing act that requires considering both biological and social factors. Since the Missouri Department of Conservation's (Department) last Deer Management Plan (plan) was developed in 2014, the complexities of deer management have continued to increase. The spread of chronic wasting disease (CWD), declining deer hunter numbers, and the inability of commonly implemented harvest regulations to result in sufficient levels of antlerless harvest in some areas represent significant challenges to the future of deer and deer management in Missouri. Since the Department's last plan was written, deer numbers have increased considerably in much of the state. Although the deer population currently exists at desired levels in most of Missouri, deer numbers continue to increase despite liberalizations to antlerless harvest opportunities. As such, managers will be challenged with developing new approaches to meeting antlerless harvest objectives. This will be particularly important given the detection of CWD in an increasing number of Missouri counties. A key aspect of managing Missouri's deer population in the future will involve using the deer seasons and harvest regulations to influence deer abundance and composition in a way that results in the population being as resilient as possible to CWD while considering stakeholder desires.

The mission of the Department's deer program is to use science-based wildlife management to maintain healthy, biologically and socially balanced deer populations throughout the state that provide recreational opportunities and minimize human-deer conflicts and the potential for negative impacts on ecosystem health. To fulfill this mission, this plan outlines five goals: 1) deer population management; 2) hunting and recreation; 3) deer health and disease; 4) education, communication, and public engagement; and 5) research. Within these five goals are 24 objectives and 110 strategies that comprise the bulk of this strategic plan and serve as the springboard for the work that will result from operationalizing the plan. Although the revised plan provides long-term strategic goals and a framework that directs deer management in Missouri, the Department's approach to deer management will remain sufficiently adaptive as circumstances change and as new information becomes available.

Deer Population Management: The plan's first goal is to proactively manage deer populations, so they exist within biological and social carrying capacity within defined management units (i.e., counties) using science-based management practices. Accomplishing this goal will involve monitoring the deer population and establishing deer population goals for each county. Other

areas of focus within this goal include evaluating the effectiveness of current deer hunting regulations to meet deer population objectives on public and private lands, and evaluating current strategies used in urban and suburban areas to manage deer populations. Also important is developing regulations and innovative tools for local deer management in areas where county-level regulations are not adequate to achieve deer management goals.

Hunting and Recreation: The second goal of the plan is to provide opportunities for all citizens to enjoy deer-related recreational activities and to promote deer hunting as a socially and culturally important tradition that is the primary tool to achieving deer population goals. Given the decline in deer hunter numbers and Missouri's aging deer hunter population, managers must increase hunter recruitment and retention and develop creative ways to scale these approaches to match the magnitude of the observed declines. To bolster recruitment of new hunters, managers will evaluate the current deer season structure and associated regulations to ensure they are as simple as possible while allowing deer population goals to be met. Additionally, managers must ensure that the deer season structure provides fair and equitable allocation of opportunity for hunters on both public and private lands.

Deer Health and Disease: Ensuring the maintenance of a healthy deer population and minimizing the threat and impacts of CWD and other diseases on the deer population is the third plan goal. CWD poses a significant threat to the long-term health of Missouri's deer herd and to the state's hunting heritage. To be effective at slowing the spread of CWD, managers must continue to work with partners to maintain a robust CWD surveillance effort that allows for early detection of the disease in new areas. Continuing to implement broad-scale (i.e., county-level regulations) and localized (e.g., targeted removal) CWD management efforts will be critically important to slowing the spread of the disease and preventing increases in CWD prevalence rates. Given the expansion of CWD, exploring additional long-term, scalable, management tools and regulations will be needed to effectively manage the disease into the future. Continuing to regulate confined cervids to minimize disease transmission risks between confined and free-ranging cervids will continue to be important as will policies and regulations that minimize the risk of introducing diseases not currently found in Missouri.

Education, Communication, and Public Engagement: The fourth plan goal is to provide information to stakeholders about deer management and create opportunities for public engagement in deer management decisions and in the collection of biological information that influences deer management. Objectives within this goal include ensuring that the Department effectively communicates about CWD and its deer management strategies. Another important objective is engaging stakeholders in deer management decisions, particularly those that will significantly affect hunting opportunity. To achieve this goal, managers will collaborate internally and externally to provide science-based information to the public. Additionally, where

possible, opportunities will be provided to allow the public to contribute to biological data collection to help manage the deer population.

Research: The last goal of the plan is to support and conduct applied research to help inform the management of Missouri's deer population. Missouri's deer program has a rich history of conducting research to help guide harvest management decisions. It will be important that managers continue to identify knowledge gaps and use research to fill these gaps to continue moving deer management forward in Missouri. Research that can help to inform the most effective way to manage and communicate about CWD at broad and localized spatial scales will be particularly important.

INTRODUCTION

The white-tailed deer (*Odocoileus virginianus*; deer) is arguably the most important game species in North America and in Missouri. In addition to being the most pursued big game species in Missouri, deer are both socially and economically important to the citizens of the state. Because stakeholder opinions about deer and deer management often vary widely, there are many challenges associated with managing deer populations. Providing enough deer to satisfy hunters and wildlife viewers while maintaining deer populations at levels that minimize human-deer conflict is a delicate balancing act that requires consideration of both biological and social factors.

This Deer Management Plan (plan) is a revision of the plan developed 10 years ago. The former plan outlined the components of Missouri's deer management program and provided strategic direction for deer management in Missouri over the following decade. During this plan revision, each of the former plan's goals, objectives, and strategies was evaluated to determine their appropriateness for inclusion in the current plan. Because the status of Missouri's deer population has changed in some significant ways during the past decade, revision of the plan also involved the development of new objectives and strategies to respond to challenges that were not present, or were not as significant, when the last plan was written.

Like the previous plan, this plan describes many activities that are already occurring and proposes new concepts to be evaluated during implementation of the plan. Like the former plan, it does not provide operational details of the deer management program. Operational details (e.g., proposed regulation changes, research proposals, and work plan adjustments) will be evaluated and implemented through the appropriate processes. This revised plan provides long-term strategic goals and a framework that directs deer management in Missouri. However, it is critical that the Department's approach to deer management remains sufficiently adaptable as circumstances change or as new information becomes available. As such, management activities

may deviate from the plan when warranted, and the plan will be updated when significant changes in approach are made.

Existing and future challenges associated with deer management in Missouri include, but are not limited to: the spread of chronic wasting disease (CWD); declining deer hunter numbers; rapidly increasing deer populations in some portions of the state and the need for new ways to increase antlerless deer harvest; declining meat processor numbers, including those participating in the Share the Harvest program; deer management in urban areas; public versus private land deer management and hunting opportunities; and changing hunter attitudes, preferences, and demographics. Ultimately, there is no optimal condition for deer management – only a series of alternative strategies that have some predictable and some unpredictable outcomes. Therefore, identifying deer management goals and priorities remains a critical first step in helping to shape the future of deer management in Missouri.

This plan outlines five primary goals that incorporate the current priorities for deer management in Missouri: 1) Proactively manage deer populations so they exist within biological and social carrying capacity within defined management units using science-based management practices; 2) Provide opportunities for all citizens to enjoy deer-related recreational activities and promote deer hunting as a socially and culturally important tradition that is the primary tool to achieving deer population goals; 3) Ensure the maintenance of a healthy deer population and minimize the threat and impacts of CWD and other diseases on the deer population; 4) Provide information to the public about deer management and create opportunities for public engagement in deer management decisions and in collection of biological information that influences deer management; and 5) Support and conduct applied research to help inform the management of Missouri's deer population.

HISTORY OF WHITE-TAILED DEER IN MISSOURI

Pre-1930s – Decline of the Missouri Deer Herd

Pre-European settlement, deer were found throughout Missouri with the highest densities occurring in northern Missouri. Like many wildlife species in the latter half of the 19th century, deer numbers declined as Europeans settled Missouri. The deer population decline occurred at a time when humans were impacting the landscape at an unprecedented scale. Throughout much of Missouri, forests were cut, most accessible land was grazed or farmed, and humans were scattered on small parcels across the rural landscape. The decline in deer numbers resulted from the significant human-induced environmental changes and overexploitation caused by local consumption and market hunting.

Deer population declines in Missouri became evident by the 1870s, and local statutes were instituted to try and stem the decline. The first statewide legislation aimed at protecting the deer population did not occur until 1874 when a nine-month closed season was imposed. However, market hunting continued which caused further population declines. With no provisions for enforcement of the laws, early legislation was largely ineffective. The first effective law aimed at protecting Missouri's deer population was the Walmsley Law which was implemented in 1905, reducing the deer season to two months in length. Does and fawns were also protected year-round. The Walmsley Law also provided, for the first, paid game wardens to enforce the law; however, there were setbacks, and the law was repealed in 1907. Deer numbers continued to decline to a low of approximately 400 deer in 1925 when the deer season was closed. Following the season closure, wildlife refuges were acquired and deer from other states were brought in for restocking.

1930s-1980s – Restoration of the Missouri Deer Herd

Deer have proven to be adaptable to human activities and despite significant human impacts on Missouri's landscape, deer populations recovered and even took advantage of the changes. Population recovery would not have occurred, however, without a change in public attitudes toward wildlife. Early efforts to stem the deer population decline through regulation generally failed due to a lack of public support. In the early twentieth century, attitudes toward wildlife shifted from a utilitarian to a more conservation-oriented emphasis. Citizens recognized their impacts on wildlife and began supporting efforts to protect and restore many wildlife species. As a result, the stage was set for the recovery of deer and many other species when the Department was formed, and modern-day wildlife conservation began.

The state legislature reopened the deer hunting season in 1931 for bucks only which remained in effect until 1938 when the newly formed Conservation Commission closed the season once again. Although there had been some small increases in deer numbers since the low in 1925, creation of the Department and the Conservation Commission initiated the first significant and successful effort to restore deer and many other wildlife species to the state. In 1938, the Conservation Commission implemented several programs to protect and restore many of Missouri's game species, including deer. Enhanced wildlife law enforcement, an expanded refuge program, control of unwarranted fires and over-grazing, progressive timber and wildlife habitat management, public conservation education programs, and an aggressive deer relocation effort were all important to restoring the deer population. These efforts stimulated rapid growth of the deer population and by 1944 there were an estimated 15,000 deer in Missouri – up from approximately 400 deer two decades prior. As a result, the Conservation Commission established the first modern day firearms deer hunting season in 1944. The first archery season was a three-day season in 1946 which was open in one county. The first deer harvested with archery methods

in Missouri did not occur until 1950. By the early 1960s, Missouri had its first statewide archery season.

Deer management was relatively simple as the population was being restored because the primary objective was to increase deer numbers. This was accomplished primarily by protecting antlerless deer from harvest. Early deer biologists in Missouri, however, realized the importance of population management and the role of antlerless harvest to regulating population growth. In a proactive response to a rapidly increasing deer population, the harvest of antlerless deer was initiated in 1951. The early initiation of antlerless harvest proved beneficial as population goals evolved from rapid deer population growth to population stabilization. Hunters in states with long histories of restrictive antlerless harvest were much more reluctant to harvest antlerless deer, often resulting in deer populations that exceeded biological and social carrying capacities. Missouri's history of having hunters accustomed to harvesting antlerless deer made population management much easier as deer numbers increased. As the deer population increased, the firearms deer season and hunting regulations continually evolved, particularly the liberalization of antlerless harvest opportunities.

1980s-2011 – Stabilization of the Missouri Deer Herd

By the late 1980s, deer populations across much of the state had been well established and were growing rapidly. This era of rapid population growth was met with increasing liberalization of regulations and expanded hunting opportunities. Hunters had previously been allowed to harvest one deer during the firearms season, but in 1988, hunters could harvest one to two additional antlerless deer on bonus permits in several management units. Starting in 2004, hunters were issued unlimited antlerless permits in many counties in northern, central, and western Missouri. These changes were intended to address issues related to the growing deer population and were ultimately effective at stabilizing, and in some cases reducing, deer populations in many parts of rural Missouri.

Traditionally, deer management in Missouri has focused on increasing deer numbers at a large geographic scale which was relatively simple to accomplish through limited antlerless harvest quotas. As the deer population became established statewide, the focus shifted to establishing and achieving localized population goals which were influenced by environmental and social factors. As a result of the complexity of these interrelated factors, the delicate balance of managing deer populations at biologically sound and socially acceptable levels has become considerably more difficult.

2012-Present – Missouri’s Deer Herd in the Presence of CWD

Management of deer in Missouri changed significantly when CWD was first detected in the wild deer herd in 2012. Since this initial detection in northcentral Missouri, CWD has been detected in over a third of Missouri counties scattered throughout the state. The spread of CWD has resulted in numerous changes to broad-scale deer hunting regulations within the CWD Management Zone. It has also resulted in significant changes to CWD surveillance efforts including the number of deer tested annually. Since detecting the disease, the Department has invested heavily in localized CWD management (i.e., targeted removal) to slow the spread of CWD and help maintain low CWD prevalence rates. Managing Missouri’s deer population so it exists within biological and social carrying capacity while minimizing the impacts of CWD will continue to be a task of monumental significance.

STATUS OF WHITE-TAILED DEER IN MISSOURI

Deer populations are well established throughout Missouri with an estimated statewide population of approximately 1.7 million deer. Deer numbers in most of southern Missouri continue to increase and now exists at desired levels in most counties. Meanwhile, conservative antlerless harvest regulations have allowed the deer population in central and northern Missouri to recover from the significant hemorrhagic disease outbreak that occurred in 2012. Since the former plan was written, liberalizations to antlerless harvest opportunities have continued to be implemented in many areas of the state in an effort to stabilize the growing population.

Despite increases in antlerless permit numbers and the creation of several new firearms season portions, current levels of antlerless deer harvest are insufficient to stabilize the deer population in many areas of the state. This will challenge deer managers to consider new options for increasing harvest of antlerless deer to meet deer management objectives. The need to increase deer harvest in portions of the state will be made more challenging because deer hunter numbers have declined, and the average age of Missouri deer hunters continues to increase.

During the last decade, CWD has spread in Missouri – from being identified in two counties when the former plan was written, to 45 counties by the end of 2024. As a result of CWD expansion, managers have made changes to hunting regulations that have affected deer demographics (e.g., increased antlerless harvest, rescinded the antler-point restriction) and hunter behavior (e.g., feeding ban, carcass transportation restrictions, and mandatory sampling within the CWD Management Zone). Although CWD prevalence rates remains low in Missouri, the spread of the disease is concerning, and CWD could have significant long-term adverse effects on Missouri’s deer population, hunting culture, and economy. Taken collectively, the threat posed by CWD and the challenge of managing a deer population with the disease, coupled with

increasing deer numbers and declining deer hunter numbers, result in perhaps the most challenging time for deer management in Missouri since the species teetered on the brink of extirpation a century ago. To be successful, managers must continue to adapt to the ever-changing landscape that characterizes deer management, let science help to inform decision making, and maintain support of the public.

DEPARTMENT DEER PROGRAM MISSION STATEMENT

The mission of the Department's deer program is to use science-based wildlife management to maintain healthy, biologically and socially balanced deer populations throughout the state that provide recreational opportunities and minimize human-deer conflicts and the potential for negative impacts on ecosystem health.

GOALS, OBJECTIVES, AND STRATEGIES

This plan has been developed to provide long-term strategic goals that direct management of deer in Missouri. The plan also presents a series of objectives and strategies for managing Missouri's deer herd in the future. The goals of this plan should remain relatively constant over time; however, objectives and strategies may need to be altered periodically when conditions change, and when new challenges arise.

Goal 1. Deer Population Management: Proactively manage deer populations so they exist within biological and social carrying capacity within defined management units using science-based management practices.

Deer are highly valued by Missouri citizens; however, deer can cause conflicts through agricultural damage, deer-vehicle collisions, transmission of zoonotic diseases, damage to landscaping, suppression of forest regeneration, and other ways. The Department attempts to minimize the negative impacts that deer can have by using regulated deer hunting to maintain deer populations at socially acceptable levels and by providing landowners and communities several lethal and non-lethal alternatives to mitigate deer damage and human-health risks associated with deer.

It is important for a deer management plan to define management units and to propose measures to assess status of the population. A plan should also propose methods to develop population goals, management strategies to achieve the population goals, and a method to monitor population response within each management unit. In Missouri, deer management units are delineated by county boundaries, and hereafter in this plan, the terms 'management unit' and 'county' are used interchangeably. Ultimately, there are three desired deer population

management objectives for a defined management unit: increasing the deer population, maintaining a stable population, or reducing the population.

The challenge in establishing population goals is balancing social and biological demands given that there are variable deer densities, habitat conditions, disease concerns (e.g., CWD) and stakeholder attitudes toward deer within and among management units. Any method for establishing population goals should consider all potentially affected interests within the management unit. In the end, public attitudes toward deer and perceptions of the population will determine the success or failure of the deer management program in Missouri. A key aspect of managing Missouri's deer population in the future will involve using the deer seasons and harvest regulations to influence deer abundance and composition in a way that results in the population being as resilient as possible in the presence of CWD while considering stakeholder desires.

Recreational hunting is the primary tool for managing deer populations and deer-human conflicts in Missouri. However, traditional hunting practices may not always be feasible or effective in certain locations. Therefore, maintaining alternatives to traditional management for mitigation of damage or diseases, where needed, is critical to ensuring that the public continues to place a high value on deer in Missouri.

- Objective 1.1: Establish deer population goals for each county considering habitat availability, recreational demand, status of CWD, and the potential for deer-human conflict.
 - Strategy 1.1.1: Evaluate current methods for establishing deer population goals and alternative methods that could incorporate habitat availability, hunter satisfaction and success, production landowner perceptions of deer abundance, human-deer conflicts, and others.
 - Strategy 1.1.2: Evaluate current and alternative processes and mechanisms for obtaining stakeholder input when establishing population goals and proposing changes to regulations that would influence deer population demographics.
 - Strategy 1.1.3: Consider the status of CWD and the effect of deer density and deer demographics on CWD transmission rates when establishing deer population goals.
- Objective 1.2: Monitor deer population status (in relation to population goals) and trends using science-based techniques.
 - Strategy 1.2.1: Evaluate current and alternative methods of monitoring deer population status and trends and associated data requirements.

- Strategy 1.2.2: Use responses from surveys of deer hunters and agricultural producers to assess deer population status in each county in relation to social carrying capacity.
- Strategy 1.2.3: Develop and implement methods to monitor deer herd health (e.g., age-distribution, reproductive rates, age-specific antler development, physical condition) and landscape parameters (e.g., deer browse pressure, plant species richness) to ensure deer populations are within biological carrying capacity.
- Objective 1.3: Establish deer hunting seasons and regulations within each county to meet deer population goals.
 - Strategy 1.3.1: Evaluate the effectiveness of current deer season timing and structure to meet deer population goals.
 - Strategy 1.3.2: Evaluate the deer season framework to ensure regulations provide the flexibility necessary to achieve management goals and are simple and easily understood by hunters.
 - Strategy 1.3.3: Modify the availability and length of the various portions of firearms deer season and adjust firearms antlerless permits and other regulatory options to achieve management goals.
 - Strategy 1.3.4: Consider new regulations that could increase antlerless deer harvest in counties where current regulations are not resulting in sufficient harvest to meet deer management goals.
- Objective 1.4: Establish regulations on public lands within each county to meet deer population goals on those areas.
 - Strategy 1.4.1: Evaluate the effectiveness of the framework for establishing deer population goals on Department areas.
 - Strategy 1.4.2: Evaluate the effectiveness of the deer hunting regulatory framework on Department areas to achieving the desired deer population demographics (i.e., density, sex-ratio, age-structure) on these areas.
 - Strategy 1.4.3: Continue to work with partners (e.g., Missouri Department of Natural Resources, National Park Service, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Forest Service) to implement regulations that meet deer population goals on the areas they manage.
- Objective 1.5: Develop regulations and provide flexible and innovative management tools and opportunities for hunters and landowners to achieve local deer management goals.
 - Strategy 1.5.1: Evaluate the effectiveness of the Deer Management Assistance Program (DMAP) in helping landowners achieve their deer management goals.

- Strategy 1.5.2: Evaluate current permitting structure and allocation of landowner deer hunting permits to ensure landowners can meet local deer management goals.
- Strategy 1.5.3: Continue to provide technical assistance on various lethal and non-lethal approaches to management of human-deer conflicts.
- Strategy 1.5.4: Evaluate the feasibility of developing a program that connects hunters with landowners that desire deer to be harvested on their land.
- Objective 1.6: Evaluate the effectiveness of deer management tools and strategies in urban and suburban communities.
 - Strategy 1.6.1: Evaluate current strategies, policies, and alternatives to minimize conflicts and meet population goals in areas where traditional deer population management is constrained or not feasible.
 - Strategy 1.6.2: Evaluate the effectiveness of current regulations and investigate additional management strategies for communities dealing with localized deer management issues.
 - Strategy 1.6.3: Continue to engage elected officials, municipal agencies, and residents in community deer management evaluation methods and promote inter- and intra-community dialog about deer management challenges.
 - Strategy 1.6.4: Evaluate current strategies and consider new methods for engaging local communities and landowners about deer management.

Goal 2. Hunting and Recreation: Provide opportunities for all citizens to enjoy deer-related recreational activities and promote deer hunting as a socially and culturally important tradition that is the primary tool to achieving deer population goals.

Deer hunting has become an important part of Missouri’s wildlife conservation heritage and modern-day traditions. In 2024, more than 475,000 individuals possessed a deer hunting permit in Missouri. Deer hunting-related expenses contribute more than \$1.5 billion to Missouri’s economy annually and support more than 13,000 jobs. More than 1.5 million Missourians, the majority of whom do not hunt, enjoy viewing deer and other wildlife and spend more than \$2 billion on this pursuit annually.

Deer hunting is the primary tool the Department uses to manage the deer population. Therefore, proper application of this management tool is critical to meeting deer population goals. Additionally, there is a great deal of tradition associated with Missouri’s deer hunting season; Through time, there has been a cultural shift in the expectation of the hunting experience, with an increasing number of hunters desiring to see, and harvest, older age-class bucks. Complicating the desire of hunters for a deer population with an older buck age-structure is the spread of CWD and the associated regulation changes that have occurred within the CWD Management Zone (i.e., rescinding the antler-point restriction). Maintaining a healthy deer population and achieving

deer population goals, while maintaining high levels of public satisfaction with the deer population and deer management, will continue to require consideration of the opinions of a broad suite of stakeholders.

- Objective 2.1: Evaluate ways to increase and adapt efforts to recruit, retain, and reactivate deer hunters.
 - Strategy 2.1.1: Survey deer hunters to understand the barriers to participation in deer hunting.
 - Strategy 2.1.2: Work with staff in the Department's Education and Relevancy Branches to develop a deer hunter recruitment marketing plan.
 - Strategy 2.1.3: Explore development of a program to connect potential hunting mentors with people interested in hunting.
 - Strategy 2.1.4: Communicate about hunter number declines and encourage hunters to serve as mentors to those interested in becoming hunters.
 - Strategy 2.1.5: Continue to promote deer hunting to nonhunters and hunter-adjacent groups (e.g., shooting sports, fishing) to increase deer hunter numbers.
 - Strategy 2.1.6: Work to increase interest in the consumption of venison by collaborating on field to fork and similar programs and outreach opportunities.
 - Strategy 2.1.7: Work with staff in the Department's Communications, Education, and Relevancy Branches to develop programs to increase interest in hunting and consumption of venison, particularly for residents of urban areas.
- Objective 2.2: Establish a deer hunting season structure and regulations that promote hunter participation, recruitment, and retention.
 - Strategy 2.2.1: Identify attributes that affect the quality of the deer hunting experience (e.g., hunter density/interference, deer population characteristics, land access) and consider these attributes when establishing deer hunting seasons and regulations.
 - Strategy 2.2.2: Evaluate deer abundance and the number of hunters in each county to optimize hunting opportunity and hunter satisfaction.
 - Strategy 2.2.3: Evaluate deer hunting season structure, timing, and methods to provide abundant and diverse hunting opportunities.
 - Strategy 2.2.4: Evaluate deer hunting regulations and season structure to ensure simplicity while providing adequate hunting opportunities.
 - Strategy 2.2.5: Evaluate hunter compliance with deer hunting regulations and identify reasons for non-compliance.
- Objective 2.3: Create a simple regulatory system that ensures fair and equitable allocation of hunting opportunities (e.g., seasons, methods, and permits) on private lands.

- Strategy 2.3.1: Evaluate participation in, and support for, the various portions of the firearms season and archery season and, where appropriate, adjust to meet stakeholder desires.
- Strategy 2.3.2: Evaluate deer hunting permit availability for hunters and landowners and adjust as appropriate.
- Objective 2.4: Create a simple regulatory system that ensures fair and equitable allocation of hunting opportunities (e.g., seasons, methods, permits) on public lands.
 - Strategy 2.4.1: Evaluate hunter opinions of hunter density on public lands to determine if changes are needed to improve hunter satisfaction.
 - Strategy 2.4.2: Review the current allocation of hunting opportunities and regulation structure (e.g., methods, antlerless permits, hunter numbers) on Department areas to ensure that, where possible, deer population goals are meeting recreational desires.
 - Strategy 2.4.3: Work with partners to evaluate deer hunting opportunities on public lands not owned or managed by the Department.
 - Strategy 2.4.4: Evaluate the managed deer hunt system to ensure the program provides abundant and diverse opportunity for hunters while achieving deer management goals.
 - Strategy 2.4.5: Collaborate with other Department planning initiatives focused on recreational use to expand opportunity in underserved recreational opportunity areas.
- Objective 2.5: Continue to promote recreational hunting as the primary tool to manage the deer population.
 - Strategy 2.5.1: Continue to promote regulated hunting as the most effective and publicly acceptable option for managing the deer population.
 - Strategy 2.5.2: Continue to support and promote the Share the Harvest program.
 - Strategy 2.5.3: Explore ways to increase funding for the Share the Harvest program to provide the opportunity for hunters to donate deer at no cost to them.
 - Strategy 2.5.4: Expand the number of participating Share the Harvest processors to ensure reasonable options exist throughout the state for hunters to donate deer.
 - Strategy 2.5.5: Explore additional outlets for surplus hunter-harvested deer if and where needed.
 - Strategy 2.5.6: Increase awareness of the importance of deer hunting to broader conservation efforts (e.g., habitat conservation for threatened and endangered species).

- Objective 2.6: Provide opportunities and support for Missourians interested in viewing deer and managing land for the benefit of deer.
 - Strategy 2.6.1: Continue to manage Department areas for the benefit of native wildlife species, including deer, while providing public access for wildlife viewing opportunities.
 - Strategy 2.6.2: Continue to promote and provide educational, technical, and financial assistance to private landowners interested in managing their property for deer and other wildlife species.

Goal 3. Deer Health and Disease: Ensure the maintenance of a healthy deer population and minimize the threat and impacts of CWD and other diseases on the deer population.

The Department is responsible for ensuring the health of the deer population through management and regulation. Like all wildlife species, deer are susceptible to numerous diseases and parasites. The spread of CWD in Missouri and the periodic occurrence of severe hemorrhagic disease outbreaks have raised public concerns regarding the short- and long-term impacts of diseases on the health of Missouri's deer population.

CWD poses a significant threat to the long-term health of the state's deer herd. The spread of CWD in Missouri jeopardizes the health of the deer population and is a long-term threat to the state's hunting heritage and economy. Management actions to minimize the spread of CWD, to maintain low prevalence rates, and minimize the risk of introducing the disease to new areas are top priorities of the Department's Deer Program.

The management response to a disease must consider the level of risk the disease poses to the health of the deer population, other wildlife, livestock, and humans. Identification and monitoring of diseases of concern coupled with development of contingency plans to deal with current and emerging disease risk will be beneficial in addressing current and future disease management challenges.

- Objective 3.1: Conduct surveillance for CWD and other diseases that pose a significant health risk to the deer population.
 - Strategy 3.1.1: Continue to conduct CWD surveillance to allow for early detection of the disease in new areas and to monitor distribution and apparent prevalence where CWD has been found.
 - Strategy 3.1.2: Continue to work with meat processors and taxidermists to bolster statewide CWD surveillance.
 - Strategy 3.1.3: Ensure annual county level CWD sampling goals are met.
 - Strategy 3.1.4: Continue to develop the Share the Harvest CWD testing program to ensure there are an adequate number of processors for testing.

- Strategy 3.1.5: Continue to conduct passive surveillance for hemorrhagic disease to describe intensity and geographic distribution of outbreaks and potential impacts on the deer population.
- Strategy 3.1.6: Communicate more broadly about hemorrhagic disease to improve public understanding about the disease and increase reporting of suspect cases.
- Strategy 3.1.7: Evaluate and identify the need for surveillance of other deer diseases and develop monitoring programs where appropriate.
- Strategy 3.1.8: Provide sick deer response guidelines to Department staff annually to ensure consistency of approach in sample collection and submission.
- Strategy 3.1.9: Educate the public about disease signs and symptoms and leverage their assistance with disease monitoring through voluntary reporting methods.
- Strategy 3.1.10: Evaluate current methods and, if necessary, develop new methods to monitor health and condition of the deer population.
- Objective 3.2: Conduct management practices that limit CWD prevalence and minimize the spread of CWD in the deer population.
 - Strategy 3.2.1: Continue to implement broad-scale regulations to slow the spread of CWD and minimize introduction of the disease to new areas.
 - Strategy 3.2.2: Continue to implement the best available localized management tools to minimize the spread of CWD.
 - Strategy 3.2.3: Evaluate the restriction of regulations within the CWD Management Zone to this geography given the increasing spatial distribution of CWD.
 - Strategy 3.2.4: Evaluate hunter understanding of regulations designed to slow the spread of CWD.
 - Strategy 3.2.5: Evaluate the factors that influence the effectiveness of current localized CWD management strategies (e.g., targeted removal, CWD Management Permits) and explore ways to maximize their effectiveness.
 - Strategy 3.2.6: Explore additional long-term, scalable, management tools and regulations to slow the spread of CWD, including opportunities to increase deer harvest by hunters within CWD Core Areas.
 - Strategy 3.2.7: Continue to collaborate with adjoining states and other wildlife professionals around the country to stay informed about new and emerging CWD surveillance and management tools and methods.
- Objective 3.3: Regulate confined cervids in a manner that minimizes the risk of disease transmission among cervids within these facilities and with free-ranging cervids.
 - Strategy 3.3.1: Collaborate with the Missouri Department of Agriculture and confined cervid industry representatives to ensure compliance with the regulations established for confined cervids.

- Strategy 3.3.2: Develop a protocol for responding to reports of cervids that have escaped from confined cervid facilities or those of which the origin is unknown.
- Objective 3.4: Implement policies and regulations to minimize the risk of introducing diseases not currently established in Missouri.
 - Strategy 3.4.1: Regulate confined cervids in a manner that minimizes the risk of the introduction of diseases that pose a threat to free-ranging cervids.
 - Strategy 3.4.2: Develop contingency plans to manage diseases in free-ranging and confined cervids, where possible, to prevent or minimize population impacts.
 - Strategy 3.4.3: Promote management practices that minimize the risk of introduction of infectious diseases.
 - Strategy 3.4.4: Stay informed about new and emerging wildlife disease issues and respond appropriately to emerging threats.
- Objective 3.5: Minimize risks from diseases that impact cervids, humans, and livestock.
 - Strategy 3.5.1: Continue to educate the public about zoonotic disease risks and explore additional outreach tools (e.g., public awareness campaigns, web dashboards, development of school programs, engaging with healthcare providers).
 - Strategy 3.5.2: Work with public health agencies to monitor cervid diseases that may be of human health concern.

Goal 4. Education, Communication, and Public Engagement: Provide information to stakeholders about deer, deer hunting, and deer management and create opportunities for public engagement in deer management decisions and in the collection of biological information that influences deer management.

Many members of the public are interested in deer and deer management and are directly affected by deer management decisions. Additionally, discussions about deer hunting and deer management among stakeholder groups can elicit strong responses that are often conflicted among groups. Public opinions and philosophies often stem from traditions, long-held ideals, and biases that may be difficult to change. Because of the diversity of stakeholders affected by deer management, it is critical that effective communication and engagement are a priority to ensure the long-term success of the Department's deer management program. It is widely recognized that engaging large and diverse groups of stakeholders is difficult, and development of educational materials that clearly communicate management strategies can be challenging. Therefore, the Department must implement a clear strategy to engage Department staff, partner organizations, and the public to proactively address deer management issues.

- Objective 4.1: Communicate effectively with stakeholders about CWD and the Department's CWD surveillance and management strategies.
 - Strategy 4.1.1: Develop a strategic and operational CWD communication plan.
 - Strategy 4.1.2: Work with the Department's Communications Branch to communicate broadly and frequently with the public about managing a deer population with CWD and provide information that helps to counteract misinformation about the disease.
 - Strategy 4.1.3: Develop a communication strategy to assist with landowner communication about targeted removals.
 - Strategy 4.1.4: Provide information and training opportunities to Department staff to ensure consistent, accurate messaging about CWD, CWD surveillance, and CWD management.
 - Strategy 4.1.5: Provide easy access to annual CWD sample numbers, county-level sampling results, and apparent prevalence estimates.
 - Strategy 4.1.6: Promote voluntary CWD sampling opportunities.
 - Strategy 4.1.7: Provide educational materials about CWD and communicate broadly to hunters about CWD-related regulations and best management practices.
 - Strategy 4.1.8: Provide accessible, comprehensive, and relevant information about CWD on the Department's website.

- Objective 4.2: Clearly and effectively communicate deer management strategies and deer hunting regulations to stakeholders.
 - Strategy 4.2.1: Provide science-based deer management information to the public to foster an understanding of deer management goals and the importance of antlerless deer harvest to achieving those goals.
 - Strategy 4.2.2: Develop and implement a communication strategy that provides deer management information to the public.
 - Strategy 4.2.3: Communicate broadly to hunters about changes to deer hunting seasons and regulations.
 - Strategy 4.2.4: Evaluate the *Fall Deer & Turkey Hunting Regulations and Information* booklet to determine if there are opportunities for simplification.
 - Strategy 4.2.5: Collaborate with the Department's Communications and Education Branches to create programs to educate hunters about deer hunting regulations.

- Objective 4.3: Ensure stakeholder engagement in deer management decisions and clearly communicate outcomes.
 - Strategy 4.3.1: Use the most appropriate science-based approaches when quantifying public perceptions of deer and deer management strategies.

- Strategy 4.3.2: Use surveys of randomly selected hunters to assess their opinions about deer population status and deer hunting seasons and regulations.
- Strategy 4.3.3: Use surveys of randomly selected production landowners and other public input methods to assess deer population status in relation to social carrying capacity.
- Strategy 4.3.4: Evaluate ways to increase response rates to deer hunter surveys.
- Strategy 4.3.5: Develop and implement plans to engage stakeholders when considering deer management issues.
- Strategy 4.3.6: When necessary, engage stakeholders through surveys, public meetings/open houses, focus groups, and/or other appropriate public input methods to ensure citizen interests are considered.
- Strategy 4.3.7: Make results of stakeholder engagement efforts (e.g., surveys, public comment periods) available to the public.
- Objective 4.4: Provide information about deer, deer hunting, and deer management to the public.
 - Strategy 4.4.1: Collaborate with the Department's Communications and Education Branches to create educational materials about deer and deer hunting for the public including topics such as processing deer and cooking venison.
 - Strategy 4.4.2: Continue to work with partners to develop and deliver science-based deer management publications and information to the public.
 - Strategy 4.4.3: Engage and support partners in education and outreach efforts related to deer and deer management.
 - Strategy 4.4.4: Continue to promote programs and tools for landowners to help manage local deer populations (e.g., DMAP).
 - Strategy 4.4.5: Continue to host regional private land management workshops on deer management, herd health, landowner cooperatives, land management, and deer population survey techniques.
 - Strategy 4.4.6: Continue to provide technical assistance to landowners and landowner cooperatives regarding deer habitat and population management.
 - Strategy 4.4.7: Provide educational resources and training materials about deer and deer management to Department staff.
 - Strategy 4.4.8: Communicate findings of research projects to internal and external stakeholders through the Department's research website, annual Missouri Deer Season Summary and Population Status Report, and other outlets.
- Objective 4.5: Provide opportunities for the public to contribute to biological data collection that is used to help manage Missouri's deer population.

- Strategy 4.5.1: Increase citizen participation in data collection that generates indices of deer abundance, sex ratio, and recruitment (e.g., Bowhunter Observation Survey, partnerships with local government entities, and landowner cooperatives).
- Strategy 4.5.2: Explore additional opportunities for hunters and citizens to collect data that could be used in the management of Missouri's deer population.

Goal 5. Research: Support and conduct applied research to help inform the management of Missouri's deer population.

Missouri's deer program has a rich history of conducting research to help inform management. These efforts have improved the Department's understanding of deer population dynamics, resource selection, space use, hunter preferences and satisfaction, and other areas of focus. It will be important that the Department's deer program continues to identify knowledge gaps and to use research to fill these gaps to move deer management forward in Missouri.

- Objective 5.1: Conduct research to inform deer management.
 - Strategy 5.1.1: Identify knowledge gaps and research needs as they relate to deer ecology and management.
 - Strategy 5.1.2: Prioritize research needs annually and pursue internal and external research funding opportunities as available.
 - Strategy 5.1.3: Continue ongoing research to inform development of population models to estimate deer demographics.
- Objective 5.2: Conduct research to inform management of, and communication about, CWD.
 - Strategy 5.2.1: Continue ongoing research projects to evaluate the factors that influence the effectiveness of CWD management and communicate results to stakeholders.
 - Strategy 5.2.2: Identify other research needs as they relate to CWD epidemiology and management.
 - Strategy 5.2.3: Monitor stakeholder opinions about CWD and CWD management through time to assess the effectiveness of communication efforts.
 - Strategy 5.2.4: Engage with other state wildlife agencies and partners about the potential for collaborative CWD research and standardized CWD surveillance and management reporting practices.